

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. – 45. (Cancelled).

46. (Currently Amended) A plasma processing apparatus for applying a plasma process to a substrate, the plasma processing apparatus comprising:

a process chamber in which the substrate is subject to the plasma process;

a plasma source that generates plasma in the process chamber;

a gas introducing portion configured to introduce a gas into the process chamber, said gas introducing portion being formed in an annular ring shape;

a first vacuum device that evacuates the gas from said process chamber;

a second vacuum device that evacuates gases from said gas introducing portion; and

a gas exhaust line connecting said gas introducing portion to said second vacuum device,

wherein said gas introducing portion includes:

an inlet port through which the gas is introduced into said gas introducing portion;

an outlet port through which the gas is evacuated from said introducing portion by said second vacuum device;

a gas passage provided in said gas introducing portion and connected to said inlet port and said outlet port, said gas passage being formed as an annular passage; and

a plurality of gas nozzles connected to said gas passage, said gas nozzles being entirely formed as second gas passages extending within the gas introducing portion,

wherein said gas exhaust line is directly connected to said outlet port of said gas introducing portion.

47. (Cancelled)

48. (Previously Presented) The plasma processing apparatus as claimed in claim 46, wherein said gas introducing portion is of a showerhead type having a surface facing said substrate and provided with a plurality of holes.

49. (Cancelled)

50. (Previously Presented) The plasma processing apparatus as claimed in claim 46, wherein said plasma source includes a flat antenna having a plurality of slits.

51. (Previously Presented) The plasma processing apparatus as claimed in claim 46, wherein said gas introducing portion includes a first gas introducing portion configured to supply a first gas and a second gas introducing portion configured to supply a second gas, and said second vacuum device is directly connected to said first gas introducing portion and a third vacuum device is connected to said second gas introducing portion.

52. (Previously Presented) The plasma processing apparatus as claimed in claim 46, wherein a diameter of said outlet port is larger than a diameter of said gas nozzles.

53. (Currently Amended) A plasma processing apparatus for applying a plasma process to a substrate, the plasma processing apparatus comprising:

a process chamber in which the substrate is subject to the plasma process;

a plasma source that generates plasma in the process chamber;

a gas introducing portion configured to introduce a gas into the process chamber, said gas introducing portion being formed in an annular ring shape;

a vacuum device that evacuates the gas from said process chamber; and

a bypass line having one end connected to said gas introducing portion and the other end connected to said vacuum device for evacuating the gas from said gas introducing portion,

wherein said gas introducing portion includes:

an inlet port through which the gas is introduced into said gas introducing portion;

an outlet port through which the gas is evacuated from said introducing portion by said vacuum device;

a gas passage provided in said gas introducing portion and connected to said inlet port and said outlet port, said gas passage being formed as an annular passage; and

a plurality of gas nozzles connected to said gas passage, said gas nozzles being entirely formed as second gas passages extending within the gas introducing portion,

wherein said bypass line is directly connected to said outlet port of said gas introducing portion.

54. (Cancelled)

55. (Previously Presented) The plasma processing apparatus as claimed in claim 53, wherein said gas introducing portion is of a showerhead type having a surface facing said substrate and provided with a plurality of holes.

56. (Cancelled)

57. (Previously Presented) The plasma processing apparatus as claimed in claim 53, wherein said plasma source includes a flat antenna having a plurality of slits.

58. (Previously Presented) The plasma processing apparatus as claimed in claim 53, wherein said gas introducing portion includes a first gas introducing portion configured to supply a first gas and a second gas introducing portion configured to supply a second gas, and said bypass line included a first bypass line and a second bypass line, and wherein said first bypass line is directly connected to said first gas introducing portion and said second bypass line is directly connected to said second gas introducing portion.

59. (Previously Presented) The plasma processing apparatus as claimed in claim 53, wherein a diameter of said outlet port is larger than a diameter of said gas nozzles.

60. (Previously Presented) The plasma processing apparatus as claimed in claim 46, wherein the plurality of gas nozzles extend radially around a perimeter of the process chamber.

61. (Currently Amended) The plasma processing apparatus as claimed in claim 46, wherein the gas passage is provided between the inlet and outlet ports and the plurality of gas nozzles and outside an interior of the plasma process chamber.

62. (Previously Presented) The plasma processing apparatus as claimed in claim 61, wherein the gas passage is provided in an inner wall of the process chamber.

63. (Previously Presented) The plasma processing apparatus as claimed in claim 53, wherein the plurality of gas nozzles extend radially around a perimeter of the process chamber.

64. (Currently Amended) The plasma processing apparatus as claimed in claim 53, wherein the gas passage is provided between the inlet and outlet ports and the plurality of gas nozzles and outside an interior of the ~~plasma~~ process chamber.

65. (Previously Presented) The plasma processing apparatus as claimed in claim 64, wherein the gas passage is provided in an inner wall of the process chamber.